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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/656,063

09/05/2003

Hassan Mostafavi

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12/10/2004

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EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/656,063		MOSTAFAVI, HASSAN	
	Examiner		Art Unit	
	Hoon Song		2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/17/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6-14, 16-21, 23-31 and 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Doi et al. (US 6678399B2).

Regarding claims 1, 11, 18 and 28, Doi teaches a method or a computer readable medium having a set of stored instruction of processing a x-ray image, comprising:

collecting a first x-ray image (upper section image) and a second x-ray image (lower section image);

determining a composite image (mask image) based on the first (upper section image) and second x-ray images (lower section image);

collecting a third x-ray image (target section image); and

adjusting (subtraction) the third x-ray image (target section image) based on the composite image (mask image)(figure 5(b), column 6 line 62).

Regarding claims 2, 12, 19 and 29, Doi teaches the first, second, and third x-ray images are generated in a sequence (upper, target, lower images).

Regarding claims 3, 13, 20 and 30, Doi teaches the first, second, and third x-ray images each contain an image of at least a portion of an animal body (22).

Regarding claims 4, 14, 21 and 31, Doi teaches the determining a composite image comprises performing an image averaging on the first and second x-ray images (linear interpolation).

Regarding claims 6, 16, 23 and 33, Doi teaches the image averaging is performed based on a weighted average (linear, equal weighted, interpolation).

Regarding claims 7, 17, 24 and 34, Doi teaches the adjusting comprises subtracting the composite image from the third x-ray image (118, column 6 line 62).

Regarding claims 8 and 25, Doi teaches a system for processing a x-ray image, comprising:

means (32) for collecting a first x-ray image (upper section image) and a second x-ray image (lower section image);

means (36) for determining a composite image (mask image) based on the first (upper section image) and second x-ray images (lower section image);

means (32) for collecting a third x-ray image (target image); and

means (36) for adjusting the third x-ray image (target image) based on the composite image (mask image) (column 6 line 62).

Regarding claims 9 and 26, Doi teaches the means for determining a composite image comprises means (36) for performing an image averaging (linear interpolation) on the first and second x-ray images.

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Regarding claims 10 and 27, Doi teaches the means for adjusting comprises means for subtracting (118, column 6 line 62) the composite image from the third x-ray image.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 35-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeo (US 6125166).

Regarding claims 35 and 43, Takeo teaches a method or a computer readable medium having a set of stored instruction of processing a x-ray image, comprising:

obtaining a first x-ray image (41);

obtaining a second x-ray image (42); and

determining a composite image (43) based on at least a portion of the first (41) and second (42) x-ray images.

Regarding claims 36 and 44, Takeo teaches the first (41) and second (42) x-ray images are generated in a sequence (by scanning phosphor screen 5 and 7).

Regarding claims 37 and 45, Takeo teaches the first and second x-ray images each contains an image of at least a portion of an animal body (figure 1).

Regarding claims 38 and 46, Takeo teaches the determining a composite image comprises subtracting at least a portion of the first x-ray image from at least a portion of the second x-ray image (figure 1).

Regarding claims 39 and 47, Takeo teaches determining a value associated with a contrast of the composite image (column 19 line 14).

Regarding claim 40, Takeo teaches a system for processing a x-ray image, comprising:

Means (5) for obtaining a first x-ray image (41);

Means (7) for obtaining a second x-ray image (42); and

means (30) for determining a composite image (43) based on at least a portion of the first x-ray image (41) and at least a portion of the second x-ray image (42).

Regarding claim 41, Takeo teaches the means for determining a composite image comprises means for subtracting at least a portion of the first x-ray image from at least a portion of the second x-ray image (figure 1).

Regarding claim 42, Takeo teaches means for determining a value associated with a contrast of the composite image (column 19 line 14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 15, 22 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doi in view of Langan et al. (US 6766064B1).

Regarding claims 5, 15, 22 and 32, Doi fails to teach the image averaging is performed using a boxcar averaging technique.

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Langan a boxcar averaging technique (column 4 line 36).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the imaging method of Doi with the boxcar averaging as taught by Langan, since the boxcar averaging of Langan would provide stabilized image preventing motion artifacts.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HKS

12/4/04
HKS


DAVID V. BRUCE
PRIMARY EXAMINER